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treated or cared for in a general hospital ward or in a private house, provided the sanitary officer is satisfied that the new surroundings to which the patient has been removed are "clean," that is, free from vermin. Indeed, it is reasonably safe to permit a "clean" patient to remain in his own home if this is "clean," for as has already been emphathized there can be no spread in the absence of lice. This is a common experience in native families of the better class and in Europeans in Mexico City.

Similarly the sulphur fumigation above prescribed may be dispensed with as unnecessary in this class of cases.

MALARIAL FEVERS.

PREVALENCE AND GEOGRAPHIC DISTRIBUTION IN ALABAMA.

By R. H. VON EZDORF, Surgeon, United States Public Health Service.

The regions in the State in which malaria prevails to the greatest extent, are apparently in the Tennessee Valley belt which extends across the northern part of the State and also in the central prairie region known as the "Black Belt." The Black Belt is so named from the character of its soil, which consists of a heavy dark clay with greenish or yellowish subsoil, underlaid with rotten limestone. It has also a large black or colored population of 62½ per cent and over. The disease also prevails to a large extent in counties scattered over the State, particularly in the southernmost counties of Washington and Mobile. Bibb County has also, apparently, a large proportion of cases.

The counties having the largest populations are Jefferson, Montgomery, and Mobile, where the largest cities of the State are located, namely, Birmingham, Montgomery, and Mobile, respectively. In these counties the largest number of deaths have occurred.

The general reports show, and the consensus of opinion of physicians is, that malarial fevers prevailed to a less extent in all parts of the State during the year 1913 than in 1912. This has also been the experience at this station in Mobile.

A study of the meteorological conditions is here of interest. The meteorological reports of the Weather Bureau, Department of Agriculture, which have been furnished this station every month since 1909, by Mr. Albert Ashenberger, local forecaster for Mobile, were reviewed, and the table following was prepared, which shows the mean temperature and the total precipitation for each month during the past five years.

Month.	Normal for month.		1909		1910		1911		1912		1913	
	Mean temperature.	Precipitation.	Mean temperature.	Precipitation.	Mean temperature.	Precipitation.	Mean temperature.	Precipitation.	Mean temperature.	Precipitation.	Mean temperature.	Precipitation.
January	49.8	4.85	56	1.50	52	2.63	57	1.82	48	4.01	57	4.29
February	53.2	5.36	55	4.08	52	6.40	61	2.09	49	5.50	54	3.40
March	59.1	7.17	63	2.39	65	1.93	64	4.07	59	6.62	60	10 58
April	66.0	4.35	66	9.04	67	1.54	69	13.40	68	17.32	66	4.16
May	73.6	4.00	71	12.10	72	2.29	75	5.08	75	7.70	74	1.59
June	79.1	5.95	80	10.44	78	6.49	83	2.36	77	4.63	79	3.88
July	80.5	7.04	83	8.28	80	11.70	80	7.53	81	6.79	81	4.41
August	79.7	6.81	83	5.63	83	5.10	81	8.81	81	8.25	82	5.61
September	76.5	5.02	79	5.42	80	1.07	82	4.09	79	5.76	77	15.50
October	67.1	3.18	70	1.60	70	7.45	73	2.89	70	11.21	66	1.70
November	57.5	3.74	65	.50	59	2.08	57	5.74	57	3.91	61	3.75
December	51.5	4.57	49	7.50	51	3.78	57	10.02	54	8.16	54	2.55
Total	793.6	62.04	820	68.48	809	52.46	839	67.90	798	89.86	811	61.42
Average	66.1	5.17	68.3	5.70	67.4	4.37	69.9	5.66	66.5	7.49	67.6	5.12

It will be seen that the precipitation for the year 1912 was 89.86 inches, and for 1913, 61.42 inches. This shows an average monthly precipitation during 1912 of 2.32 inches more than the normal, and that an excess of rainfall occurred during the spring months. It was also a year when the rivers and streams were high, overflowing many lands during the early spring, so that upon the receding of the waters many mosquito breeding places were probably created. These conditions may, in a measure, explain the greater prevalence of malaria during 1912 over that of 1913.

Prevalence of the Disease.

Circular franked postal cards were mailed by me to every physician in the State, calling for certain information on the reply cards for the months of May, June, August, September, October, and November. The following table gives a summary of the reports received each month:

	May.	June.	August.	September.	October.	November.
Cards mailed	2,286	2,400	2,325	2,325	2,320	2,320
Cards returned unclaimed	40	19	16	20	9	9
Replies received	348	333	351	291	259	234
Percentage of replies received	15.4	14.9	15.2	12.6	11.2	10.12
Counties represented in replies	67	64	66	66	62	62
Counties not heard from	....	3	1	1	5	5
Towns or cities represented in replies	216	218	242	230	189	161
Cases of malaria reported	2,162	2,734	2,846	2,466	1,016	812
Whites	1,462	1,646	1,661	1,428	600	518
Colored	710	1,088	1,185	1,038	416	294
Average number of cases per physician reporting	6	8	8	8	3	3
Cases of malaria confirmed microscopically:						
Tertian	(?)	(?)	229	134	73	42
Quartan	(?)	(?)	39	24	10	1
Estivo-autumnal	(?)	(?)	58	36	29	10
	609	646	326	194	112	53
Chronic cases of malaria reported	(?)	(?)	448	413	186	143
Cases under 15 years of age	(?)	(?)	764	662	364	275
Physicians using microscope	64	84	68	55	33	19

The percentages of replies received for the year 1912 were much better than those received during the year 1913.

The following is a comparative table showing by color and months the total number of cases for which reports were received for the years 1912 and 1913:

Months.	1912				1913		
	Whites.	Colored.	Not stated.	Total.	Whites.	Colored.	Total.
May	...	...	...	...	1,462	719	2,181
June	...	...	...	...	1,646	1,088	2,734
July	...	...	...	...	...	...	...
August	...	...	...	...	1,661	1,185	2,846
September	6,146	4,863	255	11,264	1,428	1,038	2,466
October	3,511	2,392	360	6,263	600	416	1,016
November	1,800	1,433	86	3,319	518	294	812
Total	11,457	8,688	701	20,846	7,315	4,740	12,055

The percentages of replies and the numbers of cases reported for the months of September, October, and November for the two years show that over two and one-half times as many cases were reported for the year 1912 as were reported for the same period during 1913.

The morbidity reports indicate that the disease exists in every county in the State, the tertian type being most prevalent.

The following table is a summary of all reports received each month, giving the number of cases by color in the different counties:

Name of county.	May.		June.		August.		September.		October.		November.	
	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.
Autauga	13	4	7	14	5	17	10	10	3	2	2	9
Baldwin	1	1	5	4	9	20	5	8	2	1	...	...
Barbour	26	31	9	8	3	11	25	17	4	6	25	7
Bibb	8	3	17	9	9	5	48	54	16	1	11	3
Blount	30	3	63	16	19	12	15	6	8	4	1	0
Bullock	4	19	7	21	18	15	7	14	1	4	2	13
Butler	3	0	8	7	5	0	6	10	4	8	...	...
Calhoun	73	10	32	11	26	8	13	9	10	9	0	2
Chambers	1	0	2	0	...	...	11	1	2	0	...	...
Cherokee	12	3	8	0	56	18	34	11	(1)	(1)	...	...
Chilton	7	0	55	27	40	12	37	12	27	13	17	10
Choctaw	2	3	15	8	4	11	17	24	...	...	(1)	(1)
Clarke	70	26	64	39	38	25	10	7	15	6	16	12
Clay	6	0	4	0	...	...	6	0	...	...	2	0
Cleveland	...	...	(1)	(1)	...	...	0	0	0	0	0	0
Coffee	13	1	12	6	18	0	3	1	0	0	...	...
Colbert	37	9	6	4	32	15	43	30	14	5	1	2
Conecuh	5	0	2	0	12	8	18	9	(1)	(1)	1	1
Coosa	...	...	6	4	2	1	6	0	0	0	0	0
Covington	33	7	10	9	29	33	16	5	19	7	17	12
Crenshaw	35	35	4	5	13	8	26	33	0	0	...	...
Cullman	34	4	24	10	4	1	11	0	16	0	2	0
Dale	10	1	15	8	5	3	21	26	8	11	1	2
Dallas	69	30	28	64	53	57	32	63	19	35	5	16
Dekalb	20	0	6	1	24	0	2	0	15	0	1	0
Elmore	8	9	13	10	(1)	(1)	36	14	10	17	3	7
Escambia	28	2	42	13	11	4	10	4	4	6	8	4
Etowah	39	5	65	17	24	18	31	5	5	6	5	4
Fayette	13	1	43	1	84	24	43	10	33	2	38	2
Franklin	21	8	22	3	11	3	...	...	5	0	...	...

[1] No report.

Name of county.	May.		June.		August.		September.		October.		November.	
	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.	White.	Colored.
Geneva	23	6	12	10	65	20	203	25	35	7	82	7
Greene	5	3	3	12	10	26	3	17	(1)	(1)	3	10
Hale	45	72	11	31	20	38	2	24	10	16	5	4
Henry	12	0	(1)	(1)	3	2	5	2	(1)	(1)	6	0
Houston	31	11	78	47	53	32	34	17	20	2	(1)	(1)
Jackson	19	3	42	0	20	1	7	0	......	......	......	......
Jefferson	111	57	100	54	139	53	45	30	39	23	27	17
Lamar	22	11	10	5	30	8	10	3	0	0	......	......
Lauderdale	48	10	34	8	46	12	26	3	16	3	5	2
Lawrence	10	20	115	73	8	10	(1)	(1)	25	5	50	14
Lee	......	......	2	0	7	3	4	1	0	0	0	0
Limestone	39	15	23	9	70	36	25	8	5	1	9	6
Lowndes	9	13	21	83	15	58	14	89	6	15	......	......
Macon	2	5	13	18	1	2	23	10	1	6	(1)	(1)
Madison	19	10	52	20	47	29	31	15	4	1	10	5
Marengo	0	1	26	31	35	58	39	38	7	3	4	9
Marion	6	2	24	1	60	0	13	2	2	0	6	1
Marshall	26	6	30	0	28	0	20	0	9	0	9	0
Mobile	22	45	44	47	39	75	69	98	31	54	24	49
Monroe	14	7	54	33	14	17	46	50	1	9	18	9
Montgomery	15	0	16	62	50	75	8	38	16	39	20	9
Morgan	81	32	67	46	16	3	22	9	14	3	14	8
Perry	4	2	(1)	(1)	18	29	......	......	(1)	(1)	(1)	(1)
Pickens	24	20	48	40	22	15	23	26	10	1	......	......
Pike	21	12	12	6	19	15	11	7	5	0	13	9
Randolph	10	0	5	0	2	1	2	0	4	0	5	0
Russell	15	15	12	18	5	4	6	2	(1)	(1)	3	2
Shelby	9	1	21	3	24	15	7	1	5	9	......	......
St. Clair	10	0	......	......	25	11	1	0	1	0	(1)	(1)
Sumter	12	16	28	21	45	60	26	44	(1)	(1)	8	12
Talledega	13	7	13	1	22	12	17	6	15	15	25	5
Tallapoosa	13	0	7	1	7	6	5	4	5	0	0	0
Tuscaloosa	10	14	22	10	51	40	24	25	13	25	4	4
Walker	62	27	47	13	23	9	55	25	22	6	3	0
Washington	10	4	5	2	25	27	29	12	15	9	(1)	(1)
Wilcox	69	57	48	64	39	54	13	24	22	21	4	6
Winston	......	......	7	0	4	0	18	0	2	0	3	0
	1,462	719	1,646	1,088	1,661	1,185	1,428	1 038	600	416	518	294

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[1] No report

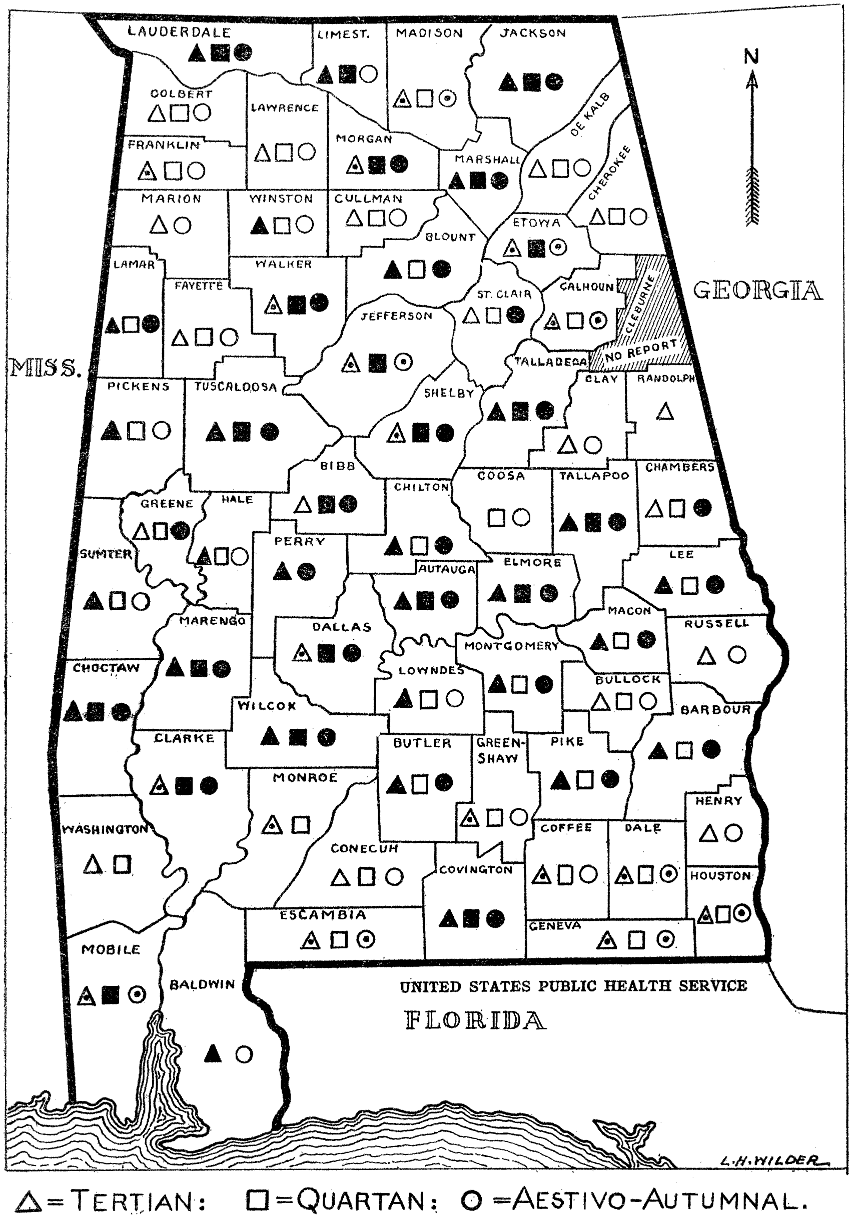
Types of Infection.

The tertian or benign type of infection prevails. The number of counties in which the types of infection were stated, and those reported confirmed for the period, are here summarized:

Types.	Number of counties.		Total.
	Not confirmed.	Confirmed microscopically.	
Tertian	22	43	65
Quartan	37	22	59
Estivo-autumnal	27	36	65

Map No. 1 has been prepared, showing by symbols the different types reported and those confirmed for the entire period of six months. This map also shows the types which were confirmed microscopically at this station, from specimens submitted by physicians for examination.

MAP 1.



MAP 1.—*Alabama.*—Showing the types of malaria reported present in the several counties of Alabama during 1913. The solid black symbols indicate the forms of malaria reported by correspondents to have been confirmed microscopically. The symbols with dots in the center indicate the counties in which the presence of the disease was confirmed microscopically from specimens forwarded to the author for examination.

Diagnoses Confirmed Microscopically.

The following table gives the number of physicians who report using the microscope, the number of counties represented, and the number of cases in which the diagnosis was confirmed microscopically, as shown in the reports received each month:

Month.	Number of physicians.	Counties represented.	Number of cases.
May	64	30	609
June	84	37	646
August	68	34	326
September	55	32	194
October	33	17	112
November	19	13	53

Circular letters were addressed to physicians in each county in the State of Alabama, Mobile County excepted, requesting them to send blood smears from active and chronic cases, and stating that slides, slide boxes, and history blanks, calling for name, age, sex, color, place of birth, address, length of residence at present address, previous history of malaria, and remarks as to clinical diagnosis, size of spleen, and if quinine had been taken, with date, together with frank for return of slides and histories, would be furnished. There was a total of 427 circulars mailed, to which 108 physicians in 54 counties replied that they would be glad to cooperate and forward specimens as requested. To those replying favorably, material, together with letter of instructions for making thin and thick blood smears, was sent.

Blood smears were received from 36 physicians, and examined microscopically, a report of the results of the examinations being made to the respective physicians.

The counties in which the different types of infection were confirmed are shown in map No. 1, indicated by symbols with dots in the center, and are as follows:

Tertian type of infection was found in specimens received from the counties of Bibb, Clarke, Coffee, Crenshaw, Dallas, Franklin, Monroe, Morgan, Shelby, and Walker, and

Tertian and estivo-autumnal types in the counties of Calhoun, Dale, Etowah, Escambia, Geneva, Houston, and Madison; also in specimens obtained at the marine hospital at Mobile and by index work in Jefferson County.

Malarial Index and Surveys.

Surveys were made at four different points in the State, comprising an examination of breeding places for mosquitoes, and a malarial blood index of a representative number of persons. These surveys were made at different times of the year, viz: Plateau in June, Anniston in August, and Leeds and Montevallo in December.

A table giving the places, number of persons examined, by color, and the results of the blood examinations, together with types of infection found, is here given:

Place.	Examined.		Total.	Number infected.		Per cent.	Types.	
	White.	Colored.		White.	Colored.		Tertian.	Estivo-autumnal.
Anniston	131	15	146	10	2	8.22	8	4
Plateau	8	104	112	....	2	1.80	1	1
Leeds	209	....	209	4	....	1.91	4	....
Montevallo	197	....	197	7	....	3.55	7	....
	545	119	664	21	4	3.76	20	5

Chronic Malaria.

A summary of the reports made of chronic cases of malaria each month is here given:

Month.	Number of physicians.	Counties represented.	Number of cases.
May	151	46	(1)
June	113	59	(1)
August	139	53	448
September	114	53	413
October	72	40	186
November	56	34	143

[1] Not stated.

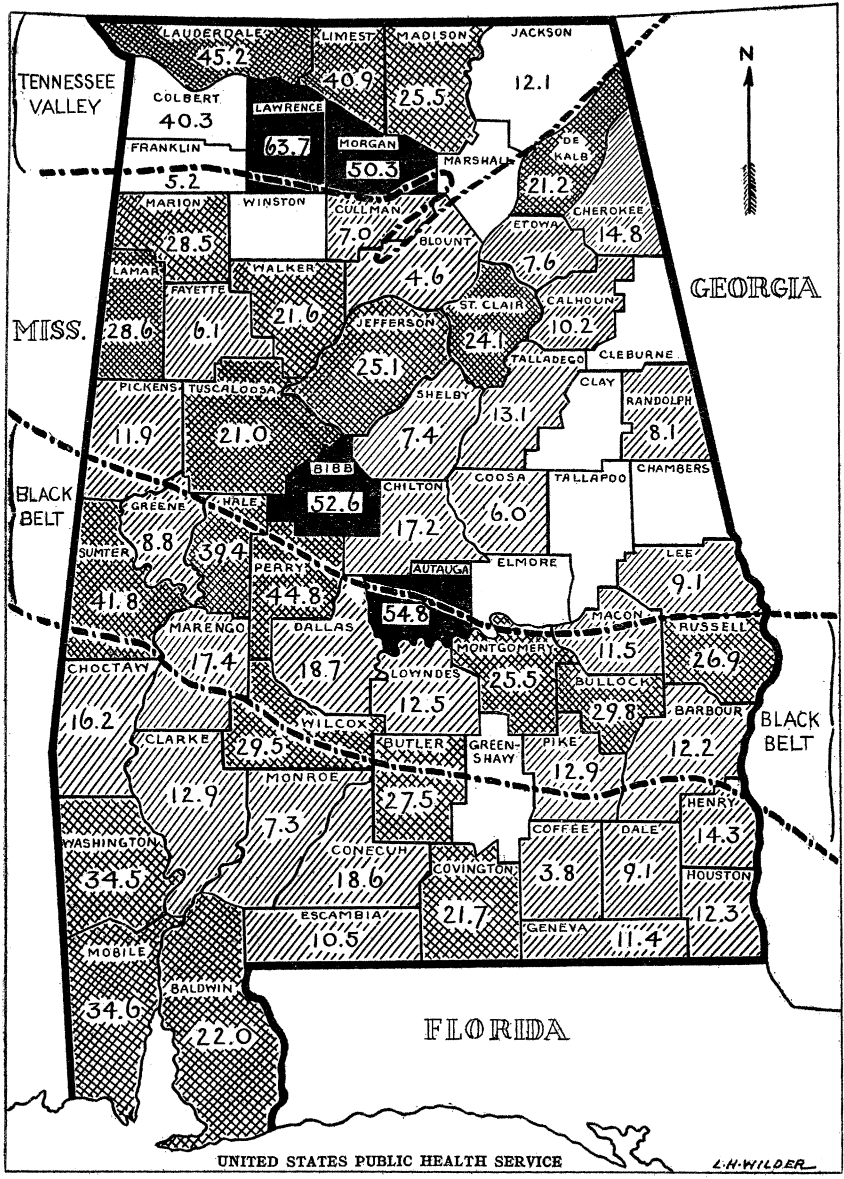
Effect on Children.

Reports were received of 12,055 cases of malaria for the six months. For the months of August, September, October, and November, 7,140 cases were reported. Of these, 2,065 cases occurred among children under 15 years of age, representing 34.6 per cent.

No reports were received for the months of May and June as to the number of cases occurring in children under 15 years of age, but there were 185 physicians in 60 counties for May and 182 physicians in 61 counties for June, reporting the occurrence of cases in children under 15 years of age.

For the month of May, 73 physicians from 40 counties; for June, 86 physicians from 42 counties; for August, 56 physicians from 36 counties; for September, 52 physicians from 38 counties; for October, 41 physicians from 26 counties; and for November, 40 physicians from 29 counties, reported knowing of children undeveloped, mentally and physically, on account of chronic malaria.

MAP 2.



☐ = NO DEATHS FROM MALARIA REPORTED.

■ = MORE THAN 50 DEATHS REPORTED AS DUE TO MALARIA PER 100,000 POPULATION.

▩ = BETWEEN 20 AND 50 DEATHS REPORTED AS DUE TO MALARIA PER 100,000 POPULATION.

▨ = LESS THAN 20 DEATHS REPORTED AS DUE TO MALARIA PER 100,000 POPULATION.

MAP 2.—*Alabama.*—Showing the counties in which no deaths were reported as due to malaria, and the relative number of deaths per 100,000 population reported as due to malaria in the other counties, 1913. Colbert, Franklin, and Jackson counties should be shaded, as deaths from malaria were reported in each, as indicated by the figures on the map.

Reported Deaths from Malaria.

A visit was made to the State board of health office, where the records of reported deaths were obtained through the courtesy of the State health officer, Dr. W. H. Sanders. These records are compiled from reports received from the county health officers by Dr. H. G. Perry, registrar of vital and mortality statistics.

From these records a map, "No. 2," has been prepared, showing the relative number of deaths reported in each county during the year 1913 per 10,000 population.

It will be seen that no deaths from malarial fevers were reported in 8 of the 67 counties in the State, as follows: Clay, Cleburne, Crenshaw, Elmore, Marshall, Tallapoosa, and Winston.

The reports of deaths from all causes for the year 1913 were as follows:

White males	5,589
White females	4,942
Colored males	5,580
Colored females	5,405
Total	21,516

The reported deaths from malarial fevers total 434 for the year 1913, which is equal to 2 per cent of the reported deaths from all causes, and is at the rate of 20.3 per 100,000 population.

The deaths reported as due to malarial fevers, arranged according to age, sex, and color, and months of decease, were as follows:

	Whites.		Colored.		Total.
	Male.	Female.	Male.	Female.	
AGES.					
Under 1 year	11	8	10	6	35
1 to 2 years	10	3	7	8	28
2 to 5 years	7	11	8	9	35
5 to 10 years	4	4	10	9	27
10 to 15 years	6	5	8	9	28
15 to 20 years	4	6	9	9	28
20 to 30 years	9	13	22	24	68
30 to 40 years	10	8	8	18	44
40 to 50 years	7	6	10	15	38
50 to 60 years	10	2	12	8	32
60 to 70 years	10	9	10	7	36
70 to 80 years	5	3	4	4	16
80 to 90 years	3	1	4	3	11
Over 90 years	....	....	1	1	2
Not stated	....	2	....	4	6
	96	81	123	134	434
MONTHS.					
January	2	5	4	1	12
February	8	2	6	3	19
March	4	6	7	4	21
April	2	6	4	12	24
May	10	2	10	10	32
June	6	8	14	12	40
July	11	12	13	19	55
August	13	17	19	26	75
September	15	11	16	18	60
October	10	7	16	15	48
November	11	2	7	8	28
December	4	3	7	6	20
	96	81	123	134	434

The number of deaths among the colored exceeded those among the white, the proportion being 1.45 colored to 1 white.

The number of deaths occurring among children during the first decade of life was 125, or 28.8 per cent of the total malarial deaths for the year. The reports further show that 41.7 per cent of the total malarial deaths occurred during the first two decades of life. This may be compared with that of previous years.

The average percentage for the three years, 1910, 1911, and 1912, was 32.7 per cent for the first decade of life and for the first and second decades of life together 44.6 per cent of the total number of deaths from malarial fevers reported for those years.

Deaths were reported for every month. It appears from the mortality records for the past four years that the months of greatest mortality are August, September, and October. The reported deaths begin to increase in number in the month of April, reaching a maximum in September, subsiding slightly in October, and rapidly in November, and average about the same for the months of December to March, inclusive.

The following table gives the number of deaths from malarial fevers, arranged according to the months of occurrence for the years 1910, 1911, 1912, and 1913:

Months.	1910	1911	1912	1913
January	11	10	9	12
February	6	3	9	19
March	9	10	9	21
April	16	12	20	24
May	26	28	20	32
June	24	32	27	40
July	47	42	59	55
August	98	66	82	75
September	89	75	114	60
October	82	104	101	48
November	44	37	59	28
December	15	18	37	20
	467	437	546	434

Mosquitoes.

Circular letters were mailed to 230 physicians in 66 counties in the State, requesting them to forward specimens of mosquitoes prevalent in their respective localities, for which containers, with franks for return, were furnished.

The following is the result of the examination and determination of species of mosquito specimens received, by counties:

County.	Species.	County.	Species.
Autauga	Culex.	Etowah	Anopheles quadrimaculatus and Culex.
Baldwin	Culex and Megarrhinus.	Franklin	Culex.
Barbour	Anopheles, A. quadrimaculatus, Culex, C. solicitans, Stegomyia (Aedes) calopus.	Geneva	Do.
Bibb	Culex and Stegomyia (Aedes) calopus.	Henry	Culex and Stegomyia (Aedes) calopus.
Blount	Stegomyia (Aedes) calopus.	Houston	Do.
Bullock	Culex and Stegomyia (Aedes) calopus.	Jackson	Culex.
Butler	Anopheles, Culex, and Stegomyia (Aedes) calopus.	Lamar	Do.
Calhoun	Culex and Stegomyia (Aedes) calopus.	Lawrence	Do.
Chambers	Anopheles punctipennis and Culex.	Lee	Do.
Cherokee	Culex solicitans.	Lowndes	Anopheles, Culex, and Stegomyia (Aedes) calopus.
Chilton	Anopheles quadrimaculatus and Culex.	Macon	Culex and Stegomyia (Aedes) calopus.
Clarke	Culex and Stegomyia (Aedes) calopus.	Madison	Culex.
Colbert	Anopheles and Culex.	Marengo	Anopheles crucians and Culex.
Covington	Anopheles, A. crucians, Culex, and Stegomyia (Aedes) calopus.	Morgan	Culex.
Crenshaw	Culex and Stegomyia (Aedes) calopus.	Pickens	Do.
Cullman	Anopheles, A. crucians, Culex, and Megarrhinus rutilus.	Randolph	Do.
Dale	Culex and Stegomyia (Aedes) calopus.	St. Clair	Do.
Dallas	Do.	Sumter	Anopheles, Culex, and Stegomyia (Aedes) calopus.
Elmore	Do.	Tuscaloosa	Culex and Stegomyia (Aedes) calopus.
Escambia	Do.	Walker	Anopheles, Culex, Stegomyia (Aedes) calopus, and Megarrhinus.
		Washington	Culex.
		Wilcox	Anopheles crucians and Stegomyia (Aedes) calopus.

While in the northern part of the State I found breeding places of Anopheles and collected larvæ in 10 counties, viz, Marion, Walker, Fayette, Tuscaloosa, Jefferson, Pickens, Green, Hale, Sumter, and Choctaw.

Mosquitoes were reported to be present in every county in the State. In 46, Anopheles have been reported.

The postal reports on the species of mosquitoes were as follows:

Species.	May.	June.	August.	September.	October.	November.
Anopheles	22	10	17	13	14	10
Anopheles and Culex	7	21	22	27	12	11
Anopheles, Culex and Stegomyia (Aedes) calopus		3	4	4	2	1
Anopheles and Stegomyia (Aedes) calopus.			1	2		
Stegomyia (Aedes) calopus and Culex			1		2	
Stegomyia (Aedes) calopus	1	1			1	1
Culex	2	2	2	2		2
Unknown	34	26	18	17	25	32
None	1	1	1	1		1
No report		3	1	1	5	5
Not stated					6	4
	67	67	67	67	67	67

Swamps and poorly drained lands were reported to exist in every county in the State.